ESTADO LIBRE ASOCIADO DE
PUERTO RICO
Departamento de Salud

Fact Sheet
Level 1 and Level 2 Assessment Formats

The Revised Total Coliform Rule (RTCR) includes two levels of assessments: Level 1 and Level 2, as established in §141.859. The goal of the assessments is to provide a review of the condition of the system's source water, treatment, distribution system, and relevant operational practices in the system in order to identify if a *sanitary defect*[1] exists that could have caused a coliform positive sample.

§141.859 also establishes that systems must correct sanitary defects found through either of the assessments that were conducted. The system must consult with the Department of Health to develop a schedule for correction of sanitary defects that are not feasible to correct immediately.

The system must document the assessment in one of the attached forms: *Level 1 Assessment Format* and/or *Level 2 Assessment Format*. The completed assessment form must then be submitted to the Department of Health for review within 30 days after the system has determined that a trigger has been exceeded. Systems should complete the entire assessment form, even if they believe they understand the apparent cause of the positive coliform sample.

The assessment forms for both Level 1 and Level 2 assessments are designed to cover the typical elements found within a system. Assessors should use professional judgment in the application of the forms to their system since the forms cannot cover all possible situations or system configurations.

Level 1 and Level 2 assessments consider the same minimum elements. Nevertheless, a Level 2 assessment is a more comprehensive investigation and requires a higher level review of available information. To these extents, Level 2 assessments must be conducted by a *party approved*[2] by the Department of Health.

A Level 1 Assessment is a self-assessment that should be conducted or managed by a responsible party of the system. This should be someone familiar enough with the system to answer the questions in the Level 1 Assessment form or to gather correct information from others who work for the system.

A Level 1 assessment is triggered if sampling results in any one of the following:

- For systems collecting 40 or more samples per month, the PWS exceeds 5.0% total coliform-positive samples for the month; or
- For systems collecting fewer than 40 samples per month, the PWS has two or more total coliform-positive samples in the same month; or
- The PWS fails to take every required repeat sample after any single routine total coliform-positive sample.

A Level 2 assessment is triggered if sampling results in any one of the following:

- The PWS has an *E. coli* MCL violation; or
- The PWs triggers a second Level 1 assessment within a rolling 12-month period, unless the State has determined a likely cause for the situation that resulted in the initial Level 1 treatment technique trigger and establishes that the system has fully corrected the problem; or

División de Agua Potable
PO Box 70184 San Juan, Puerto Rico 00936-8184
Tel. 787-777-0150 / Fax 787-777-0154

- For systems with approved reduced annual monitoring, a Level 1 treatment technique trigger in two consecutive years.

The attached figures may assist you in determining if your system requires a Level 1 or a Level 2 assessment:
- Figure 1: RTCR Requirements;
- Figure 2: Level 1 Assessment Triggers;
- Figure 3: Level 2 Assessment Triggers.

Instructions to fill out the forms:

Section A
- Provide general information of the system like: name, PWSID, address, population, etc.

Section B
- Review and evaluate the list of elements typically found in a system:
    - *Questions* Column: Check ☑ for each element reviewed;
    - *Issues identified?* Column: Check ☑ the column:
        - Yes: if potential contamination problems were identified when reviewing the element;
        - No: if potential contamination problems were not identified when reviewing the element;
        - N/A: if the element is not applicable.
    - *Issue Description* Column: provide a brief explanation of the issues found for those elements where Yes was ☑ in the Issues Identified? Column.
    - *Corrective Actions* Column: provide a corrective action for each element where an issue was identified and include the completion date.

Section C
- Describe any other relevant issues found during the evaluation.
- The evaluation must be signed by the assessor.
- Include the date of the assessment completion.

Section D
- This section will be left blank.
- Section D will be completed by the Department of Health's staff.

If you need additional information, please contact the Drinking Water Program of the Puerto Rico Department of Health at 787-777-0150.

[1]The List of Sanitary Defects Fact Sheet may be requested to the Department of Health.
[2]The Proposed Minimum Criteria to Approve a Level 2 Assessor may be requested to the Department of Health.

ESTADO LIBRE ASOCIADO DE
PUERTO RICO
Departamento de Salud

Estado Libre Asociado de Puerto Rico
Departamento de Salud

Level 1 Assessment Format

SECTION A			
System Name:		Source Water:	PWSID #:
System Type:		Population Served:	PWS Address:
Operator in Charge:		Phone:	
Person that collects TC samples:		Phone:	

SECTION B					
Questions Reviewed (Check ☑)	Issues Identified? (Check ☑)			Issue Description	Corrective Action Taken (Including date)
	Yes	No	N/A		
1. Have any of the following occurred at relevant facilities prior to the collection of TC samples?					
□ any interruptions in the treatment process					
□ any reported loss of pressure events (pressure < 5 psi)					
□ operation and maintenance activities that could have introduced total coliform					
□ reported vandalism and/or unauthorized access to facilities					
□ visible indicators of unsanitary conditions reported					
□ any firefighting event, flushing operation, sheared hydrant, etc.					
□ any sites with low or inadequate disinfectant residual or sites where it is difficult to maintain a residual					
□ any other water quality parameters measured where results were out of the ordinary					
2. Have there been any recent treatment or operational changes?					
□ sources introduced					
□ treatment or operational changes					
□ potential sources of contamination					
3. Evaluate sample site					
□ condition or location of tap					
□ regular use of connection					
4. Sample protocol followed and reviewed					
□ flush tap					
□ tap without thread					
□ fresh sample bottles					
□ sample storage acceptable					

Questions Reviewed (Check ☑)	Issues Identified? (Check ☑)			Issue Description	Corrective Action Taken (Including date)
	Yes	No	N/A		
5. Distribution system					
□ system pressure					
□ cross connection					
□ pump station					
□ air relief valves					
□ fire hydrants					
□ blow off -breaks					
□ repairs					
6. Storage facilities					
□ screens					
□ security					
□ access opening					
□ condition of tank					
□ vent					
□ drain overflow					
□ pressure tank					
□ O&M					
7. Treatment process (if applicable)					
□ interruptions					
□ POE/POU					
□ softeners					
□ O&M					
8. Source-Well					
□ sanitary seal					
□ vent screened					
□ air gap					
□ cross connection					
□ security					
□ pump to waste line					
9. Source-Spring					
□ condition of spring development					
□ condition of spring box					
□ security					
10. Source-Surface Water Supply					
□ heavy rainfall					
□ other					

SECTION C
Additional Comments:
Print name of person completing form:
Signature:
Date:

Note: Form to be completed based on data and documents available to the PWS and maintained on the system file. The form must be submitted to the Department of Health within 30 days after the system has determined that a trigger has been exceeded.

SECTION D	
Reserved for the Department of Health (DOH)	
1. Assessment has been successfully completed.	
2. Likely reason for total coliform-positive occurrence is established.	
3. System has corrected the problem.	
4. Was a reset requested and / or granted? – Rationale	
5. Name of State reviewer:	
6. Date of revision:	

ESTADO LIBRE ASOCIADO DE
PUERTO RICO
Departamento de Salud

Estado Libre Asociado de Puerto Rico
Departamento de Salud

Level 2 Assessment Format

SECTION A			
System Name:	Source Water:	PWSID #:	
System Type:	Population Served:	PWS Address:	
Operator in Charge:	Phone:		
Person that collects TC samples:	Phone:		

SECTION B					
Questions Reviewed (Check ☑)	Issues Identified? (Check ☑)			Issue Description	Corrective Action Taken (Including date)
	Yes	No	N/A		
1. Have any of the following occurred at relevant facilities prior to the collection of TC samples?					
□ Were there any operation and maintenance activities that could have introduced total coliforms?					
□ Have there been any interruptions in the treatment process?					
□ Has the system lost pressure to less than 5 psi?					
□ Have there been any vandalism and/or unauthorized access to facilities?					
□ Are there any visible indicators of unsanitary conditions observed?					
Have there been any analytical results or any additional samples collected, including source samples which were positive (not for compliance)?					
□ Have there been any sites with low or inadequate disinfectant residual? Are there sites where it is difficult to maintain a residual without flushing?					
□ Were any other water quality parameters measured and were any results out of the ordinary?					
□ Have there been any community illness suspected of being waterborne (e.g., Does the community public health official indicate that an outbreak has occurred.)					
□ Did the water system receive any TCR monitoring violations in the past 12 months? If yes, when.					
□ What was the most recent date on which satisfactory total coliform samples were taken?	Date:				
□ Have there been a fire fighting event, flushing operation, sheared hydrant, etc.					

Questions Reviewed (Check ☑)	Issues Identified? (Check ☑)			Issue Description	Corrective Action Taken (Including date)
	Yes	No	N/A		
□ Other comments on records and maintenance?					
2. Have there been any recent treatment or operational changes?					
□ Have any inactive sources recently been introduced into the system (e.g., auxiliary systems)?					
□ Have there been any new sources introduced into the system?					
□ Is there evidence of any potential sources of contamination (main breaks, low pressure, high turbidity, loss of disinfection, etc.)?					
□ Has the system operator changed?					
3. Evaluate sample site					
□ What is the condition of the tap?					
□ What is the location of the tap?					
□ What is the regular use of the connection?					
□ Have there been any plumbing changes or construction? If yes, when and what was the repair or change?					
□ Have there been any plumbing breaks or failure? If yes, when?					
□ List any identified cross connections after the service connection or in premise plumbing.					
□ Were all of the backflow prevention devices present, operational and maintained?					
□ Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when?					
□ Is there any treatment devices after the service connection or in premise?	□ POE		□ POU		
□ Other comments on sample site?					
4. Sample protocol followed and reviewed					
□ Flush tap					
□ Tap without thread					
□ Fresh sample bottles					
□ Sample storage acceptable					
5. Distribution system					
□ System pressure: Is there evidence that the system experienced low or negative pressure? If yes, when?					

Questions Reviewed (Check ☑)	Issues Identified? (Check ☑)			Issue Description	Corrective Action Taken (Including date)
	Yes	No	N/A		
□ List any identified cross connections.					
□ Pump station: Are there any sanitary defects in the pump station? Are pump(s) operable?					
□ Last pump maintenance/service date.	Date:				
□ Air relief valves: Is the valve vault subject to flooding or does the vent terminates below grade?					
□ Fire hydrant/blow off: Are any located in an area with a high water table or pits?					
□ Is the distribution system secured to prevent unauthorized access?					
□ Are the backflow prevention devices at high risk sites present, operational and maintained?					
□ Have there been any water main repairs or additions? If yes, when and what was the repair or addition?					
□ Have there been any water main breaks? If yes, when?					
□ Was there any scheduled flushing of the distribution system? If yes, when?					
□ Is there any evidence of intentional contamination in the distribution system?					
□ Other comments on the distribution information.					
6. Storage facilities					
□ Is the overflow properly screened?					
□ Are the vents properly screened?					
□ Is the facility secured to prevent unauthorized access?					
□ Does the access opening have the proper gasket and seal tightly?					
□ Could the physical condition of tank be a source of contamination?					
□ Is the vent turned down and maintaining an approved air gap at the termination point?					
□ If present, is the pressure tank maintaining an appropriate minimum pressure?					
□ Has proper O&M been performed?					
□ Was there any observed physical deterioration of the tank?					
□ Were there any observed leaks?					

Questions Reviewed (Check ☑)	Issues Identified? (Check ☑)			Issue Description	Corrective Action Taken (Including date)
	Yes	No	N/A		
□ Is there any evidence of intentional contamination at the storage tank?					
□ Has there been any facility maintenance (i.e. painting/coating)? If yes, when?					
□ Is facility maintenance occurring per appropriate schedule?					
□ Does the tank "float" on the distribution system or are there separate inlet and outlet lines?					
□ What is the measured chlorine residual (total/free) of the water exiting the storage tank today?	Residual:				
□ Are there any unsealed openings in the storage facility such as access doors, vents or joints?					
□ Other comments on the storage system					
7. Treatment process (if applicable)					
□ Treatment devices operational and maintained?					
□ Is there any recent installation or repair of treatment equipment?					
□ Were there any recent changes in the treatment process (e.g., addition of a process, change in chemical or dosage)? If yes, when, what was the change?					
□ Were there any interruptions of treatment (lapses in chemical feed, turbidity excursions, disinfection)? If yes which part, when and for how long?					
□ What is the free chlorine residual measured immediately downstream from the point of application?	Residual:				
□ Did a review of the filter turbidity profiles reveal any anomalies?					
□ Were there any failures to meet the C x T calculations?					
□ Were the flow rates above the rated capacity?					
□ Were there any anomalies on the settled water turbidities?					
□ Other comments on the treatment system.					
8. Source-Well					
□ Is the sanitary seal intact?					
□ Is the vent screened?					
□ Does the vent and pump to waste terminate in an approved air gap?					

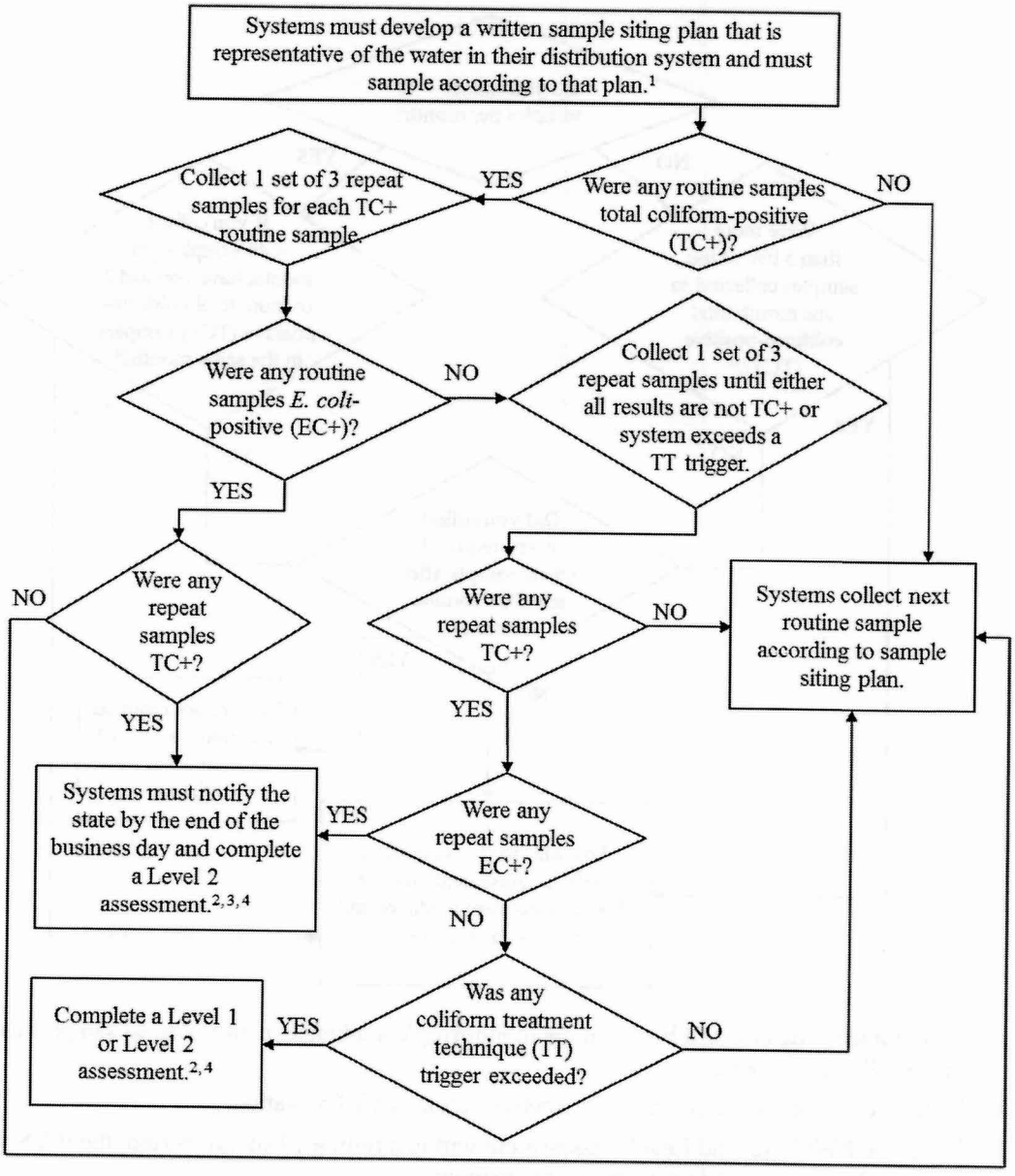
Questions Reviewed (Check ☑)	Issues Identified? (Check ☑)			Issue Description	Corrective Action Taken (Including date)
	Yes	No	N/A		
□ Are there any unprotected cross connections at the wellhead?					
□ How is the well used?	□ Primario □ Back-up □ Emergencia □ no un sistema □ no agua potable				
□ How far does the casing extend above grade?	Height:				
□ Is there evidence of standing water near the wellhead?					
□ Is the wellhead secured to prevent unauthorized access?					
□ Have there been any sewer spills, source water spills or other disturbances?					
□ Other comments on the well system.					
9. Source-Spring					
□ What is the condition of the spring development?					
□ What is the condition of the spring box?					
□ Is the spring secured to prevent unauthorized access?					
□ Other comments on the spring system.					
10. Source-Surface Water Supply					
□ Have there been any sewer spills, source water spills or other disturbances?					
□ Have there been any excess in algal blooms?					
□ Has source water turnover occurred?					
□ Source water quality					
□ Humana contamination (e.g.: industrial)					
□ Natural contamination (e.g.: run-off water)					
□ Other source water comments					
Environmental Events					
□ Has there been heavy rainfall?					
□ Has there been any rapid snow melt or flooding?					
□ Have there been changes in available source water (e.g., significant drop in water table, well levels, reservoir capacity, etc.)					
□ Have there been any interruptions to electrical power?					
□ Have there been any extremes in heat or cold?					

SECTION C
Additional Comments:
Print name of person completing form:
Signature:
Date:

Note: Form to be completed based on data and documents available to the PWS and maintained on the system file. The form must be submitted to the Department of Health within 30 days after the system has determined that a trigger has been exceeded.

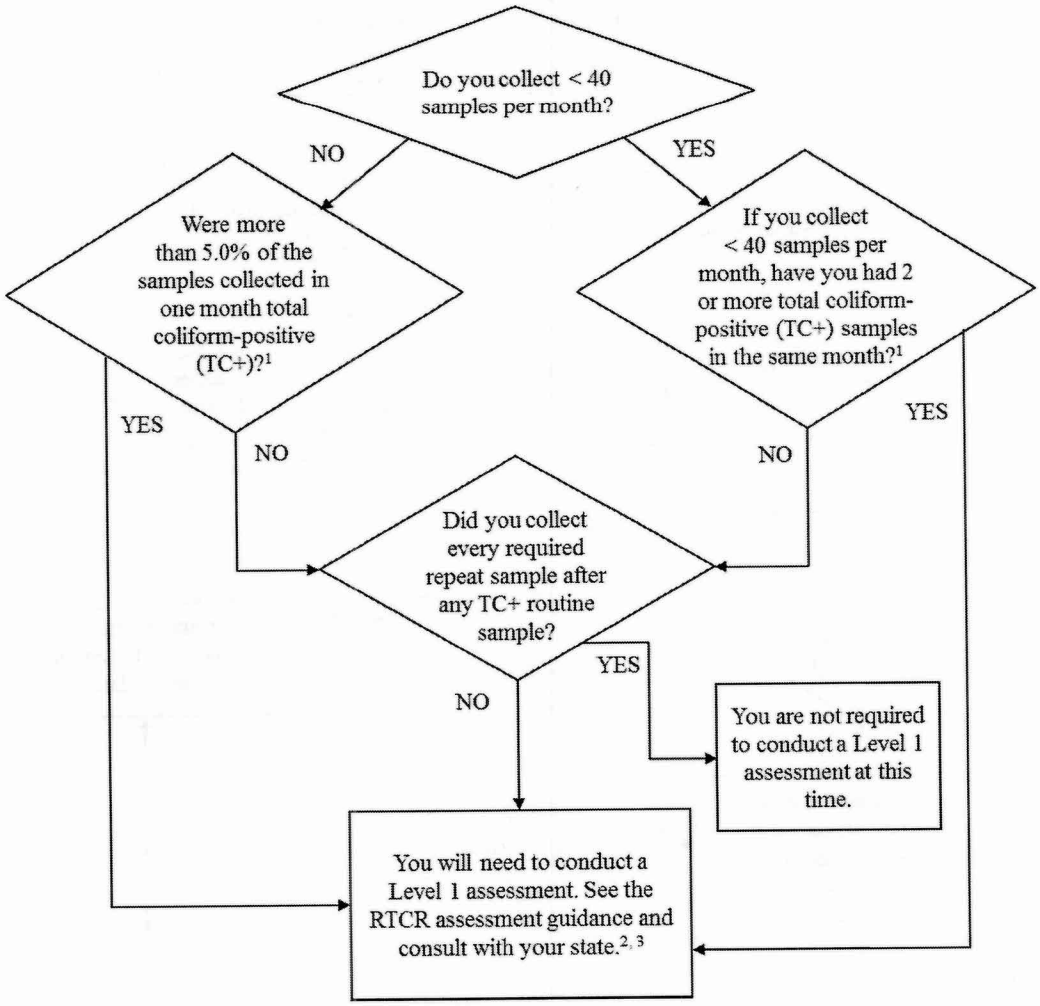
SECTION D	
Reserved for the Department of Health (DOH)	
1. Assessment has been successfully completed.	
2. Likely reason for total coliform-positive occurrence is established.	
3. System has corrected the problem.	
4. Was a reset requested and / or granted? – Rationale	
5. Name of State reviewer:	
6. Date of revision:	

Figure 1. RTCR Requirements



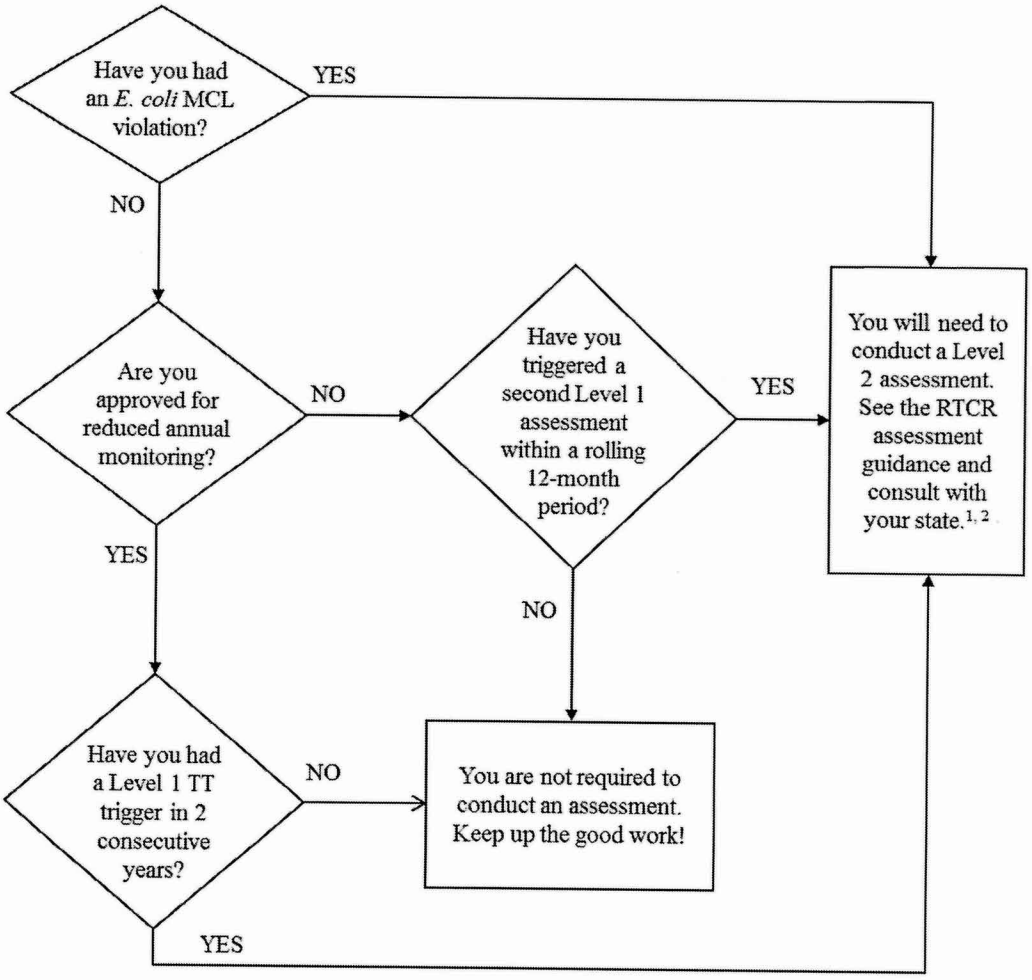
1. The RTCR allows existing PWSs to use their plan approved under the TCR. New PWSs will need to develop a plan, however. The number of routine samples that a PWS must take per month is based on the population served by that PWS.
2. The type of assessment required is based on the trigger that is exceeded. For a list of triggers and which type of assessment they require, see the Assessments Triggers flowcharts (Figures B-2 and B-3). Note that total coliform triggers differ for PWSs taking 40 or more samples per month and PWSs taking less than 40 samples per month.
3. The PWS has incurred an *E. coli* MCL violation.
4. Failure to perform assessments or corrective action is a TT violation.

Figure 2. RTCR Requirements: Level 1 Assessment Triggers



1. Compliance is determined based on the monitoring/compliance month. Repeat samples can occur in the following month.
2. Failure to perform assessments or corrective action is a TT violation.
3. If it is the PWS's second Level 1 assessment within a rolling 12-month period, the PWS will most likely have to conduct a Level 2 assessment.

Figure 3. RTCR Requirements: Level 2 Assessment Triggers



1. You will not need to conduct a Level 2 assessment if the state has determined a likely reason for the TC+ samples that caused the first Level 1 assessment TT trigger and has established that the PWS has corrected the problem.
2. Failure to perform assessments or corrective action is a TT violation.

APPENDIX D

List of Sanitary Defects

ESTADO LIBRE ASOCIADO DE
PUERTO RICO
Departamento de Salud

Fact Sheet
List of Sanitary Defects

Since a sanitary defect may also be identified as a significant deficiency, PRDOH wants to address the differences between a sanitary defect (identified during a Level 1 or Level 2 assessment indicating a pathway for microbial contamination or barrier failure) and a significant deficiency (usually identified during a sanitary survey). Each of these poses a potential public health risk; however, these two types of identified risks have differing compliance implications.

PRDOH will consider the following EPA's definitions:

- **Sanitary Defect**: *any defect that could provide a pathway of entry for microbial contamination into the distribution system or that are indicative of a failure or imminent failure in a barrier that is already in place*.

- **Significant deficiency:** *Any defect in a system's design, operation, maintenance, or administration, as well as any failure or malfunction of any system component, that the state determines to cause, or have the potential to cause, an unacceptable risk to health or that could affect the reliable delivery of safe drinking water.*

To these extents, some sanitary defects that the PRDOH might consider include, but are not limited to the following:

1. **Source issues including:**
   - Shallow wells
   - Inadequate well construction (i.e.: cover with no sanitary seals)
   - Activity in well head areas which could result in contamination
   - Crack in wells, seals and/or casings

   - Other: _____

2. **Treatment issues including:**
   - Failure to disinfect
   - History of failure in treatment
   - History of power outages that interrupt treatment

   - Other:_____

División de Agua Potable
PO Box 70184 San Juan, Puerto Rico 00936-8184
Tel. 787-777-0150 / Fax 787-777-0154

3. **Distribution:**
   - Inadequate disinfectant residual levels
   - Water mains of inadequate construction or material
   - Break in pipes
   - Biofilm build-up in the distribution system
   - Inadequate distribution system pressures
   - Potential cross-connection (s)
   - Lack of regular flushing programs
   - Contamination of water during main installation, repair or rehabilitation

   - Other:_____

4. **Tanks:**
   - Improper maintenance
   - Sediment build-up in storage tanks
   - Tank physical deficiencies (i.e.: holes)
   - Inadequate tank controls/operation
   - Improperly screened vents

   - Other:_____

5. **Others:**
   - Vandalism and/or unauthorized access to facilities

   - Other: _____

6. **The following will be considered sanitary defects depending on the operational conditions of the utility:**
   - Inadequacies of sampling sites
   - Contaminated sampling taps
   - Sampling protocol errors or not followed
   - Lack of redundancy

   - Other:_____

APPENDIX E

Protocol for Evaluation of Drinking Water Analysis Results
June 2012

DEPARTAMENTO DE SALUD
GOBIERNO DE PUERTO RICO
DIVISION DE AGUA POTABLE

Protocol for Evaluation of Drinking Water Analysis Results

(Results Evaluation Protocol)

June 2012

Title and Approval Sheet

Document Title:	Protocol for Evaluation of Drinking Water Analysis Results
Short Title:	Results Evaluation Protocol
Organization Name:	Puerto Rico Department of Health
Division/Branch:	Public Water Supply Supervision Program
Address:	PO Box 70184, San Juan, Puerto Rico 00936-8184

Prepared by:

O Santiago — June 20, 2012

Oneida Santiago, MT, MS — Date
Enforcement Section
Public Water Supply Supervision Program
PR Department of Health

Approved by:

Javier O. Torres — June 20, 2012

Javier O. Torres, PE — Date
Interim Director
Public Water Supply Supervision Program
PR Department of Health

Concurrence:

Melba Avilés Avilés — July 20, 2012

Melba A. Avilés, MS/Chemist — Date
Quality Assurance Officer and
Interim Director of Hygiene
Laboratories Certification Program
PR Department of Health

Table of Contents

References:

A. Code of Federal Regulations Title 40, Chapter 1, Subchapter D, Parts 141-143, e-CFR Data January 2011
B. Ley No. 5, "Ley para Proteger la Pureza de las Aguas Potables de Puerto Rico", 21 de julio de 1977
C. Reglamento 135, Reglamento General de Salud Ambiental, 25 de noviembre de 2008
D. Waiver Plan and Vulnerability Assessment, 1994
E. EPA Guidance for Preparing Standard Operating Procedures (SOP's) QA/G-6, March 2001

Acronyms and Abbreviations:

- Coordinator: Enforcement Section Coordinator, Regional Coordinator or Regional Environmental Health Officer of the PWSS Program.
- EPA: Environmental Protection Agency
- MCL: Maximum Contaminant Level
- MDL: Method Detection Limit
- MRL: Minimum Reporting Level
- PHL-HLCP: Puerto Rico Department of Health, Principal Health Laboratories, Hygiene Laboratories Certification Program
- PRASA: Puerto Rico Aqueduct and Sewer Authority
- PWS: Public Water System
- PWSS Program: Public Water Supply Supervision Program
- Results Evaluation Protocol: Protocol for Evaluation of Drinking Water Analysis Results
- SDWIS: Safe Drinking Water Information System

Protocol for Evaluation of Drinking Water Analysis Results

I. Introduction

The Public Water Supply Supervision (PWSS) Program has prepared and developed the *Protocol for Evaluation of Drinking Water Analysis Results* with the purpose to establish and implement a uniform quality control process for the routine activity of receiving, evaluation, data entry and validation of the drinking water analysis results in an objective and consistent manner.

Results are received in the PWSS Program from public water systems (PWS) performed in public or private laboratories. The evaluation of results will ensure compliance with EPA drinking water regulations, along with improved data comparability, credibility, and of legal defensibility.

This Results Evaluation Protocol will be re-approved when it is updated to ensure that the policies and procedures remain current and appropriate. The PWSS Program Director and/or Enforcement Section Coordinator will be responsible for ensuring that the current version of the Protocol is used. Copies of the current Protocol will be formally provided to those coordinators in charge of any duties described in the Protocol.

Protocols revisions and reviews must be documented. If there are no changes, it is stated on the document as a review not as a revision. If a change is performed then a new revision number and signature procedure is mandatory. Appendix 1: Quality Assurance Project Plan Revision Table provides a list of all revisions or reviews performed to this specific Protocol.

II. Evaluation Protocol Step Process

A. Receiving of Analysis Results

1. All documents received in the PWSS Program are registered by the administrative personnel in a log book specifically designated for this purpose. The registration includes the following information: receiving date, public water system identification number (PWS ID), public water system's name or origin of the document and a short description of the referenced subject. Completed logbooks are filed for storage in file cabinets under the custody of the Administrative Section personnel. Appendix 2 shows the composition of the PWSS Program Administrative Section

personnel with their duties and responsibilities regarding the receiving of analysis results.

2. The administrative personnel (e.g.: secretaries) classify the public water system drinking water analysis results (PRASA and Non PRASA) and then distribute it to the corresponding Rule Coordinator. Appendix 3 provides an example of the written referral document prepared for the analysis distribution. Refer to Appendix 4 for a description of the specific rule assigned to each Coordinator for the revision and evaluation of the analysis results.

B. Evaluation of Results

1. The Coordinator performs a preliminary evaluation of the results received regarding the following:

   a. **Date received:**
      i. Verify that the receiving date complies with the submittal date required by the applicable rule.
      ii. Receiving date not complying with the required submittal date will result in a monitoring/reporting (M/R) violation.
      iii. The verification will be recorded and maintained by each rule coordinator in the Results Reviewing Checklist Table. See Appendix 5.

   b. **Reported Results:**
      i. Verify the reported result and determine if it is in compliance with the maximum contaminant level or action level (AL) established according to the applicable rule. See Appendix 6 for Maximum Contaminant Level (MCL).
      ii. A reported result above the MCL or AL will result in an exceedance for the given parameter. Compliance determination must be evaluated according with each applicable rule.
      iii. The verification will be recorded and maintained by each rule coordinator in the Results Reviewing Checklist Table. See Appendix 5.

   c. **Analytical Method:**
      i. Verify that the analytical method used to analyze the sample is the one required by the applicable rule. See Appendix 6 for Contaminant and Analytical Method applicable.
      ii. A wrong analytical method used by the laboratory will invalidate the result.

iii. Verify that the laboratory is certified for the specific parameter and analytical method used by the time the analysis was performed.
iv. For the purpose of this verification, the PHL-HLCP sends to the PWS Program a certification copy whenever a new Laboratory Certification status is issued.
v. A non-certified analytical method used by the laboratory by the time the analysis was performed will invalidate the result.
vi. The verification will be recorded and maintained by each rule coordinator in the Results Reviewing Checklist Table. See Appendix 5.

d. Detection Limit:
   i. For those analyses that requires specific detection limits, verify that the detection limit is the one required by the applicable rule.
   ii. See Appendix 6 for Contaminants and Detection Methods required. MDLs are required for VOCs and composite samples. MRLs are required for THMs, HAA5, Bromate and Chlorite. Remaining DLs are used as monitoring triggers.
   iii. The use of a wrong detection limit will invalidate the result.
   iv. The verification will be recorded and maintained by each rule coordinator in the Results Reviewing Checklist Table. See Appendix 5.

e. Analytical Laboratory:
   i. In a random manner, verify the laboratory that analyzed the sample is in the current official list of certified laboratories by the time the analysis was performed.
   ii. The current official list of certified laboratories is prepared by the PHL-HLCP. A certification copy is provided to the PWSS Program whenever a new Laboratory Certification Status is issued. The PWSS Program distributes the current copy of such list to the Coordinators accordingly.
   iii. Two (2) percent of the total systems registered in the PWSS Program System Inventory should be revised monthly for this purpose. A certified laboratory compliance log will be recorded and maintained by each rule coordinator. See Appendix 7.
   iv. The result will be invalidated if the analytical laboratory is not certified for the corresponding parameter and/or methodology.

f. Sample Collector:
   i. In a random manner, verify that the sample collector is a certified sample collector by the time the analysis was performed.
   ii. The current official detailed list of certified sample collectors is prepared by the PHL-HLCP. A certification copy is provided to the PWSS Program whenever a new certification is granted. The PWSS Program distributes the current copy of such list to the Coordinators accordingly.
   iii. Two (2) percent of the total systems registered in the PWSS Program System Inventory should be revised monthly for this purpose. A sample collector compliance log will be recorded and maintained by each rule coordinator. See Appendix 7.
   iv. A non-certified sample collector will invalidate the result.

C. Compliance and Enforcement
1. The Rule Coordinator will proceed to determine compliance and submit the evaluated result analysis to the Data Management Section for data entry.
2. If the evaluated results do not comply with any of the requirements (invalidated result) described in the preceding section, the Rule Coordinator will proceed to issue the corresponding enforcement action to the system. Invalidated results will not be submitted for data entry.
3. Enforcement actions will be determined according to the specific regulation. EPA has established appropriate enforcement actions corresponding to the identified violation. All enforcement actions are prepared in writing and filed in the system's file.

D. Data Entry
1. The Data Management Section will use the electronic software system called SDWIS, developed and provided by EPA, for the data entry in the PWSS Program data base.
2. The SDWIS program generates a report known as Validation Report using the data entered in the data base.
3. The Data Management Section distributes the Validation Report to the Coordinator for the revision and validation of the results. Refer to Appendix 4 for a description of the specific rule assigned to each Coordinator for the revision and evaluation of the analysis results.

E. Validation Report
1. The Coordinator revises and evaluates the Validation Report based on the applicable rules to determine the acceptance (validation) or rejection of the Report. Refer to Appendix 4 for a description of the specific rule assigned

to each Coordinator for the revision and evaluation of the validation report.

2. Once the Validation Report is validated by the Coordinator, it will be submitted again to the Data Management Section to correct any possible errors.
3. The SDWIS program generates the Final Report. The Data Management Section submits through SDWIS the Final Report to EPA in a quarterly basis in the required format. This Report includes the validated results, violations and enforcement actions.

F. Waivers Granted

1. According to the PWSS Program Waiver Plan, waivers had been granted for dioxin and asbestos in 1994.

G. Record Keeping

1. All documents and records related to sampling and analysis results revision and evaluation of the public water systems will be maintained in the corresponding coordinator's office file cabinets and will be readily available when requested during or as a result of internal assessments.
2. Refer to Appendix 4 for a description of the specific rule assigned to each Coordinator for their record keeping.
3. All documents and records are retained in file by the time allotted in 40 CFR §142.14 and are disposed accordingly. A copy of this CFR section is included in Appendix 8.
4. Inactive documents and records are filed in file cabinets under the custody of the Administrative Section personnel.

Appendices

APPENDIX F

Proposed Minimum Criteria for Approving Level 2 Assessors

ESTADO LIBRE ASOCIADO DE
PUERTO RICO
Departamento de Salud

Fact Sheet
Proposed Minimum Criteria for Approving Level 2 Assessors

PRDOH recognizes that a Level 2 Assessment is a more detailed examination of the system, its monitoring programs and results, and its operational practices. The level of effort and resources required the Level 2 Assessments will be commensurate with a more comprehensive investigation, a higher level review of available information, and may involve the engagement of additional parties and expertise.

To this extent, PRDOH has developed the following minimum criteria and process used for approval of a Level 2 Assessor to conduct Level 2 Assessments in Puerto Rico:

1. Level 2 Assessments may be conducted by:
   a) In-house personnel (state staff)
   b) Own PWS certified operator
   c) Third party
      - Circuit rider
      - Consultant engineer
      - Other water system professional

2. PRDOH will consider qualifying Level 2 Assessors on a case-by-case basis as PWSs become in need of a Level 2 Assessment.

3. Potential Level 2 Assessors should submit qualifications and documentation to receive a certification as a Level 2 Assessor from PRDOH.

4. Level 2 Assessors may be joined on-site by PRDOH personnel during the assessment.

5. PRDOH will make the final determination on the adequacy and completeness of the information provided in the assessment.

6. Level 2 Assessments will be conducted by individuals who meet the following requirements:
   a) Each individual participating in an assessment must demonstrate they have sufficient experience in the water system industry:
      i. Water system design
      ii. Vast knowledge of drinking water regulatory requirements (i.e.: RTCR)
      iii. Maintenance and utility management
      iv. Water system operation
      v. Water system process control
      vi. Public health
      vii. Water system infrastructure

División de Agua Potable
PO Box 70184 San Juan, Puerto Rico 00936-8184
Tel. 787-777-0150 / Fax 787-777-0154

b) Leadership skills:
   i. Communication
   ii. Organization
   iii. Motivation
   iv. Decisiveness
   v. Interpretational skills
   vi. Planning
   vii. Compliance driven
   viii. Make sound decisions

c) Evidence of training on RTCR rule and requirements, including Level 2 Assessments:
   i. EPA's webinar
   ii. PRDOH training/workshop
   iii. Train-the-trainer
   iv. Other

7. PRDOH will provide train-the-trainer workshops for all interested parties as described in Step 1 of this section on a case-by-case basis.

If you need additional information, please contact the Drinking Water Program of the Puerto Rico Department of Health at 787-777-0150.

APPENDIX G

Seasonal Systems Start-Up Procedure Guidelines

ESTADO LIBRE ASOCIADO DE
PUERTO RICO
Departamento de Salud

Fact Sheet
Seasonal Systems Start-Up Procedure Guidelines

PRDOH defines a seasonal system as a non-community water system (NCWS) that is not operated as a system (PWS) on a year-round basis and starts-up and shuts-down at the beginning and end of each operating season.

In the event that a seasonal system is newly created, the Puerto Rico Department of Health (PRDOH) has determined that the routine coliform monitoring frequency will be monthly. PRDOH will not adopt any reduced monitoring provisions under the RTCR. Moreover, for seasonal systems, may require additional monitoring if deemed appropriate to protect public health.

The following site-specific considerations may be used to determine the optimal time for additional monitoring:

- During the period on highest demand (i.e.: peak demand);
- During the period when the source is most vulnerable to contamination (i.e.: wet season);
- During the period of highest water age and most stagnant water in the distribution system;
- Whether potential sources of contamination are introduced to a well's zone of influence.

PRDOH will not exempt seasonal systems from performing start-up procedures requirements. The non-community seasonal systems must conduct the following start-up steps in order to place the system back into service after it has been out of service:

- Inspect water system components, including source(s), treatment components, distribution lines and storage tanks and address any issues.
- Open hydrants and/or faucets and drain storage facilities.
- Activate source(s) and flush water through the distribution system.
- Chlorinate the water system and leave chlorinated water in the distribution system for at least 24 hours. Flush the water system to void any highly chlorinated water.
- Collect coliform samples at key locations in the distribution system to ensure that the PWS is free of microbial contamination.
- Verify that any historical or current sanitary defects have been corrected.
- Have a site visit conducted by the state or state-approved third party.

The PWS must complete the previous start-up procedure before placing the system back into service and provide water to the public. The PWS must contact the PRDOH to request a site-visit in order to certify completion of the start-up procedure. All documents must be available at the PWS for PRDOH's review and revision. Written communication will be encouraged over verbal methods between the system and PRDOH.

If you need additional information, please contact the Drinking Water Program of the Puerto Rico Department of Health at 787-777-0150.

División de Agua Potable
PO Box 70184 San Juan, Puerto Rico 00936-8184
Tel. 787-777-0150 / Fax 787-777-0154

Appendices

Appendix 1
Results Evaluation Protocol Revision Table

Appendix 1

Results Evaluation Protocol Revision Table

Review/Revision	No.	Date
Original	Original	March 2006
Revision	1	May 2006
Revision	2	June 2012

Appendix 2
Administrative Section Personnel

Appendix 2

Administrative Section Personnel

The following table shows the composition of the PWSS Program Administrative Section personnel with their duties and responsibilities regarding the receiving of analysis results:

Administrative Section Personnel	Duties and Responsibilities
Secretary, Mrs. Julia Encarnación	Receive and register in a logbook the analysis results. Classify the analysis results by rule. Prepare a written referral document for the Director's signature. Distribute the results to the corresponding Rule Coordinator. Archive the referral document.
Administrative Assistant, Miss Carmen Rosado	Maintain custody of the registration logbooks, inactive files, documents and records, and office supplies that are in storage.
Data Manager Mr. Arnaldo Aponte	Enter analysis results data in the PWSS Program data base. Generate the Validation Report. Submit Final Report to EPA.
Director, Eng. Javier Torres	Sign the referral document before distribution to the corresponding Rule Coordinator.

Appendix 3
Written Referral Document Example

DEPARTAMENTO DE SALUD
GOBIERNO DE PUERTO RICO
DIVISION DE AGUA POTABLE

20 de junio de 2012

Ana Mendoza
Oficial de Cumplimiento
Sección Non PRASA

Ing. Javier O. Torres
Director

RE: ENTREGA DE DOCUMENTOS

Se adjuntan los siguientes documentos:

	Compañía	PWSID	Descripción documento
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

wp/elbalopez/Formas/Entrega de documentos Ana

Recibido: _____

Fecha: _____

Appendix 4
Coordinator vs. Analysis Results Evaluation

Appendix 4

Coordinator vs. Analysis Results Evaluation*

Coordinator	Analysis Results Evaluation
PRASA Enforcement Section Mrs. Oneida Santiago	Evaluates all analysis results received from PRASA systems except for RADS and Pb & Cu.
Non-PRASA Enforcement Section Mrs. Ana Mendoza	Evaluates all analysis results received from Non-PRASA systems except for RADS and Pb & Cu.
Radionuclides Rule Coordinator Miss Amarilis Dominguez	Evaluates all RADs analysis results received from PRASA and Non-PRASA systems.
Lead and Copper Rule Coordinator Miss Sonia Ferrer	Evaluates all Pb & Cu analysis results received from PRASA and Non-PRASA systems.

*The academic training of the PWSS Program key individuals that has responsibilities toward this QAPP is a bachelor's degree in science or engineering and a master's degree in science or engineering. These personnel also have the licenses and/or certifications as required per their degree.

Appendix 5
Results Reviewing Checklist

Results Reviewing Checklist Table

I. Introduction

The *Results Reviewing Checklist Table* was developed with the purpose to establish a uniform process for the revision/evaluation of the drinking water analysis results received in a consistent manner. Refer to the *Protocol for Evaluation of Drinking Water Analysis Results* for more details.

II. Instructions

A. The corresponding Coordinator will review the analysis results received using the *Results Reviewing Checklist Table* provided in Section III. This *Table* will be maintained in the corresponding coordinator's office file cabinets and will be readily available when requested during or as a result of internal assessments.

B. Complete the *Results Reviewing Checklist Table*:

1. Description Review:
   a. **Date of Revision**: Provide the date of revision in the month/day/year format.
   b. **PWS ID**: Provide the PWS-ID or system's name.
   c. **Date Received**: Verify that the receiving date complies with the submittal date required by the applicable rule.
   d. **Reported Results**: Verify the reported result is in compliance with the maximum contaminant or action level established according to the applicable rule.
   e. **Analytical Method (i)**: Verify the analytical method used to analyze the sample is the one required by the applicable rule.
   f. **Analytical Method (ii)**: Verify that the laboratory is certified for the specific parameter and analytical method used by the time the analysis was performed.
   g. **MDL and/or MRL**: For those analyses that require specific detection limits, verify that the detection limit is the one required by the applicable rule.
   h. **Comments**: Provide compliance or non-compliance information if necessary
   i. **Reviewer's Initials**: Provide the reviewer's signature initials.
   j. **Reviewed by**: Provide the reviewer's full name.
   k. **Title**: Provide the reviewer's work title or position.
2. Specify not applicable information as N/A.

III. Results Reviewing Checklist Table

The *Results Reviewing Checklist Table* is found in the following page.

DEPARTAMENTO DE SALUD
GOBIERNO DE PUERTO RICO
DIVISION DE AGUA POTABLE

Results Reviewing Checklist Table*

Date of Revision	PWS ID or System Name	Date Received	Reported Results	Analytical Method (i)	Analytical Method (ii)	MDL/MRL	Comments	Reviewer Initials
m/d/y		m/d/y						
m/d/y		m/d/y						
m/d/y		m/d/y						
m/d/y		m/d/y						
m/d/y		m/d/y						
m/d/y		m/d/y						
m/d/y		m/d/y						
m/d/y		m/d/y						
m/d/y		m/d/y						
m/d/y		m/d/y						

* Note: This table must be accompanied by its corresponding instructions.

Reviewed By: ______________________

Title: ______________________